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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,351

10/07/2005

Hong-Sik Park

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EXAMINER

ULLAH, ELIAS

ART UNIT

PAPER NUMBER

2812

MAIL DATE

DELIVERY MODE

06/01/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/552,351	Applicant(s) PARK ET AL.	
	Examiner Elias Ullah	Art Unit 2812	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/7/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is in response to an application filed on 10/7/2005.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama et al. (US 5,648,300).

3. With regard to claim 1, Nakayama et al. shows a method of fabricating a semiconductor probe which includes a cantilever and a tip doped with first impurities formed on an end portion of the cantilever, wherein a resistive region lightly doped with second impurities is formed at a peak of the tip, and first and second semiconductor electrode regions heavily doped with the second impurities are formed at inclined surfaces of the tip, the polarity of the second impurities being opposite to that of the first impurities, the method comprising: (a) forming a stripe-shape mask layer on a substrate doped with first impurities (col. 7, lines 64-68) and forming first and second semiconductor electrode regions by heavily doping second impurities on the substrate uncovered by the mask layer the second impurities being opposite in polarity to the first impurities (col. 8, lines 22-63); (b) annealing the substrate to narrow a distance between the first and second semiconductor electrode regions and form resistive regions lightly doped with the second impurities at outer boundaries of the first and

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second semiconductor electrode regions (col. 8, lines 21-32); (c) patterning the mask layer in a predetermined shape and etching a portion of a top surface of the substrate not covered by the patterned mask layer to form a resistive tip; and (d) etching a bottom surface of the substrate to form a cantilever with the resistive tip formed at an end portion thereof(col. 9, lines 15-21).

4. With regard to claim 2, Nakayama et al. shows a tip-forming portion by allowing the restive region obtained by diffusing the first and second semiconductor electrode regions to come in contact with each other (col. 8, lines 19-43).

5. With regard to claim 3, Nakayama et al. shows forming a stripe shape photoresist in an orthogonal direction to the mask layer, and performing an etching process to make the mask layer in a rectangular shape (col. 8, lines 31-46).

6. With regard to claims 4 and 5, Nakayama et al. shows removing the patterned mask layer from the substrate and annealing the substrate under an oxygen atmosphere to form an oxide layer of a predetermined thickness on the surface of the substrate; and removing the oxide layer to sharpen an end of the resistive regions and the first and second semiconductor electrode regions come in contact with each other on an upper part of the substrate (col. 8, lines 20-40).

7. With regard to claims 6-7, Nakayama et al. shows the first impurities are p-type impurities and the second impurities are n-type impurities and first impurities are n-type impurities and the second impurities are p-type impurities (col. 7, lines 60-67 and col. 8, lines 20-30).

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Ullah whose telephone number is (571) 272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL LEBENTRITT can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

E. Ullah  
May 26, 2007.

SCOTT B. GEYER  
PRIMARY EXAMINER

Ko. S

5/29/07